

SI Appendix

Figure S1: Data acquisition using the emBODY tool.

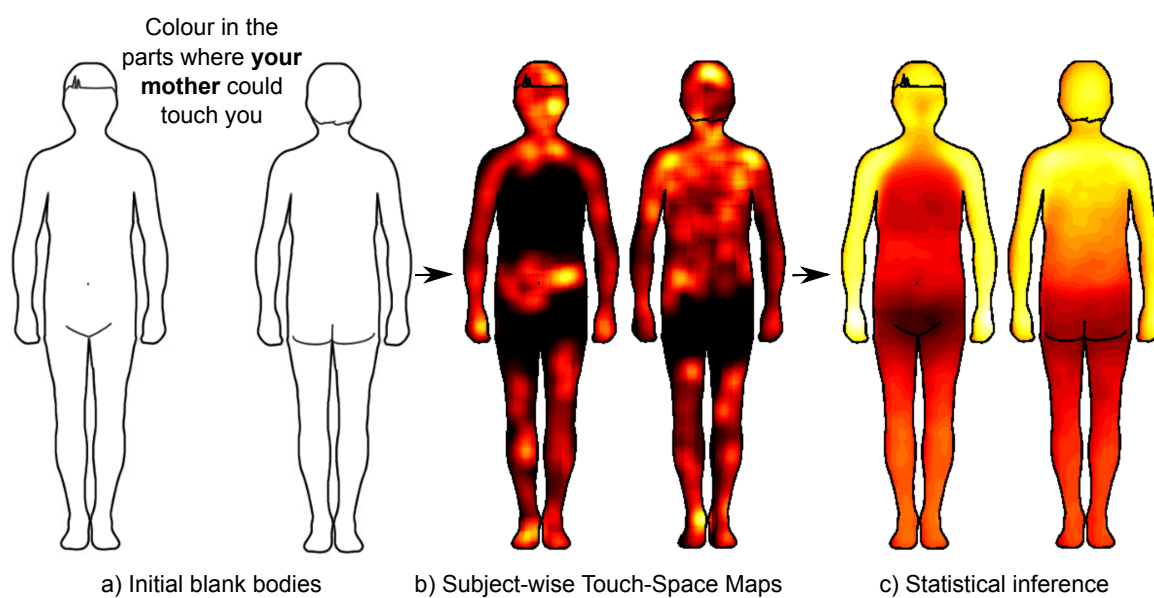


Figure S2: Likelihood of touching different social-network members for different reasons with 95% confidence intervals. Blue and red labels signify males and females respectively.

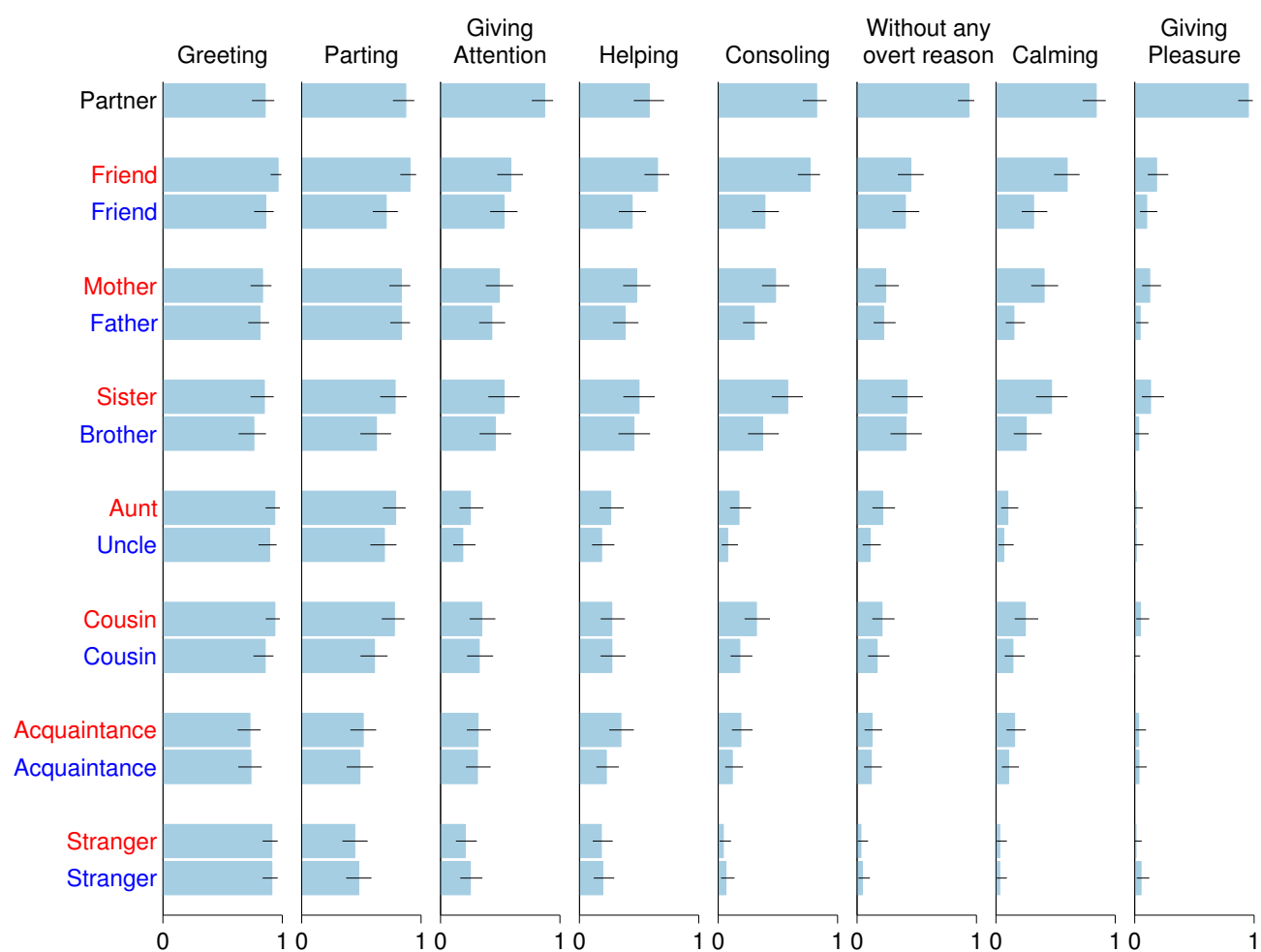


Figure S3: Relationship-specific Touch-Area Maps (TAMs) across all studied countries (altogether 1368 individuals), divided by subject gender. The blue-outlined black areas highlight the taboo zones, where a person with that relationship is not allowed to touch. The data are thresholded at $p < 0.05$, FDR corrected. Colorbar indicates the T statistic range. Blue and red labels signify males and females respectively.

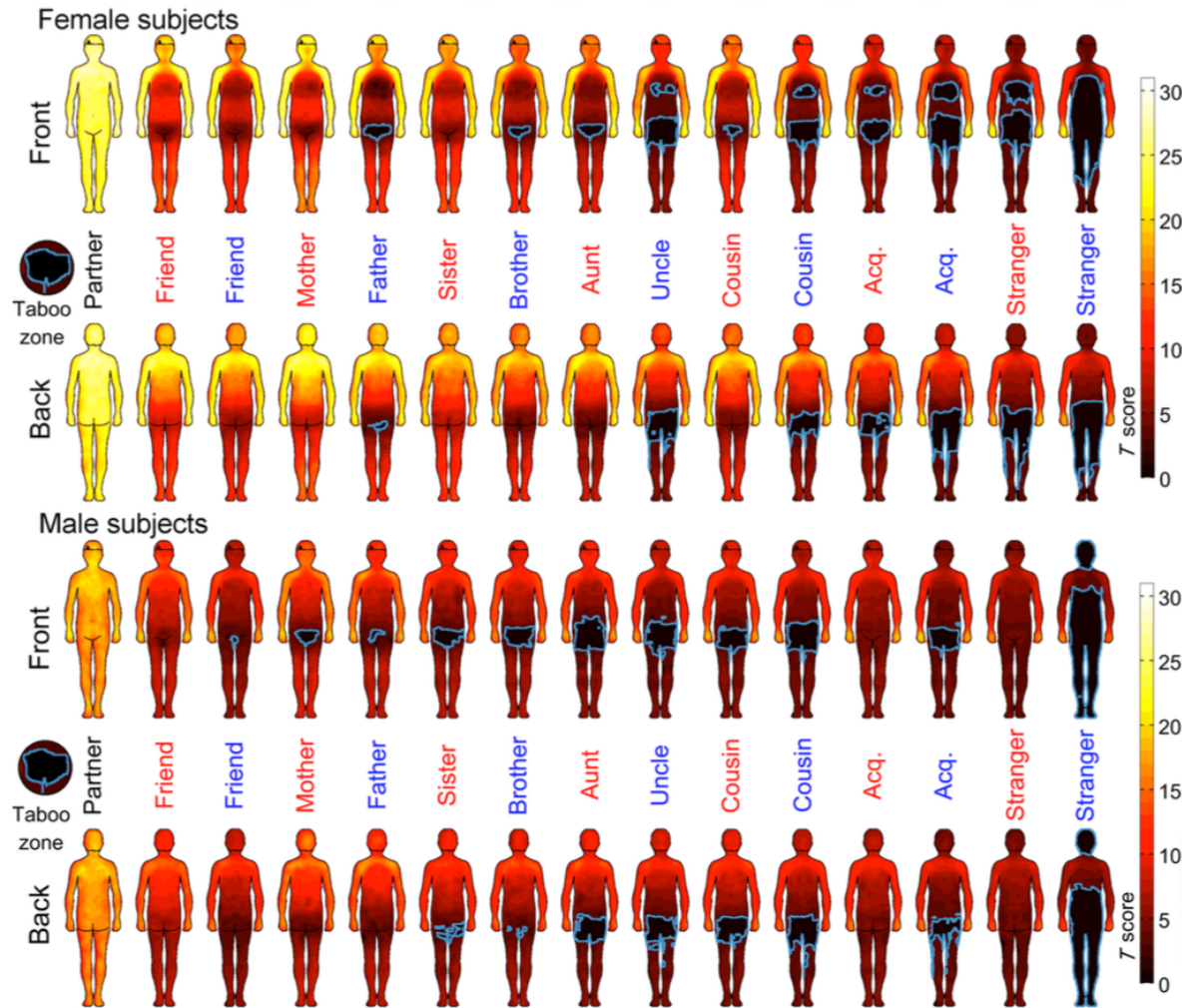


Figure S4: Distribution of time (in days) since last meeting the indicated persons (left) and the emotional bonds with them (right) for all tested countries.

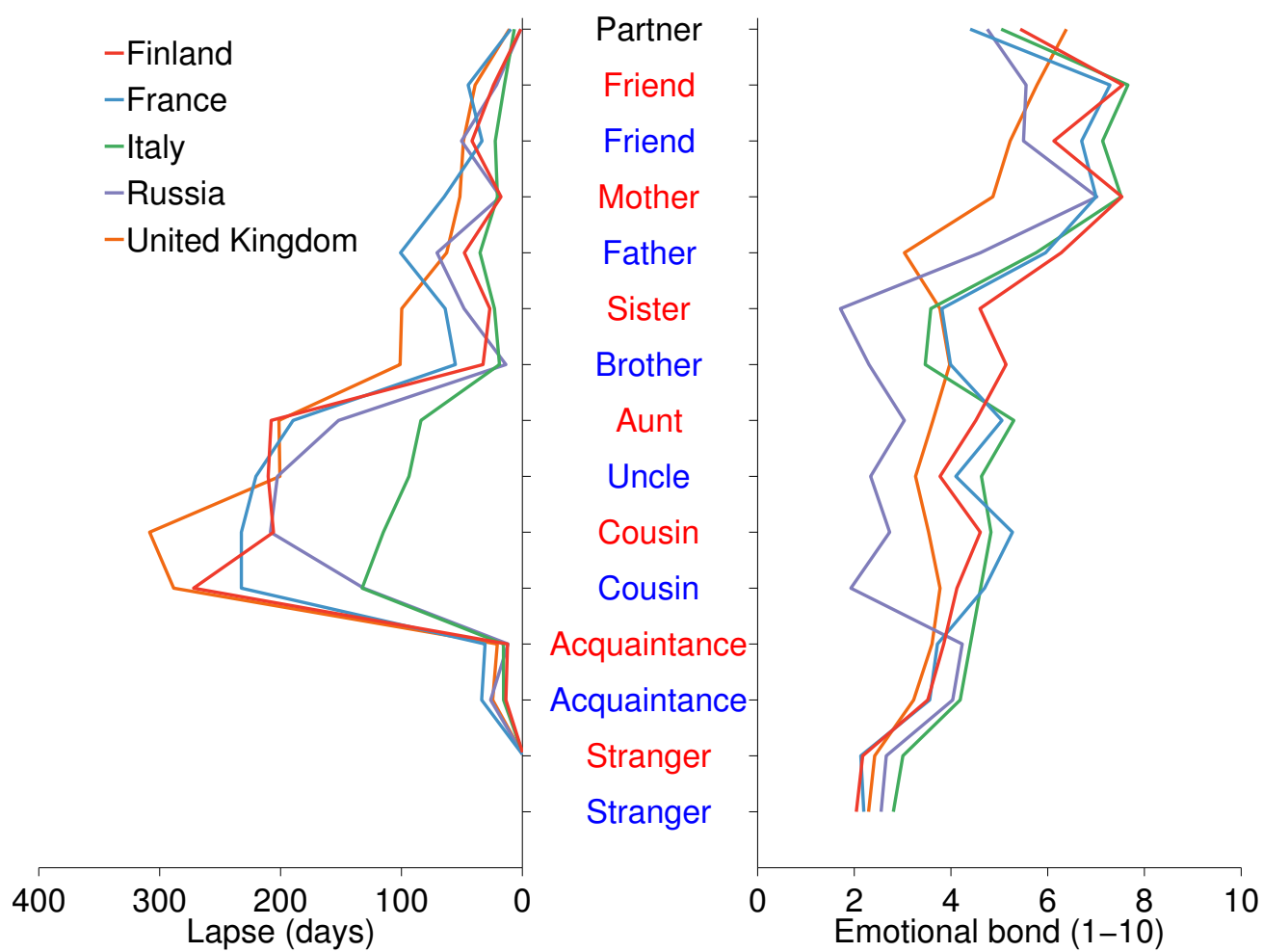


Figure S5: Touchability index as a function of emotional bond in all five countries. Each point depicts an average of all of the social network members who were assigned with the same emotional bond value

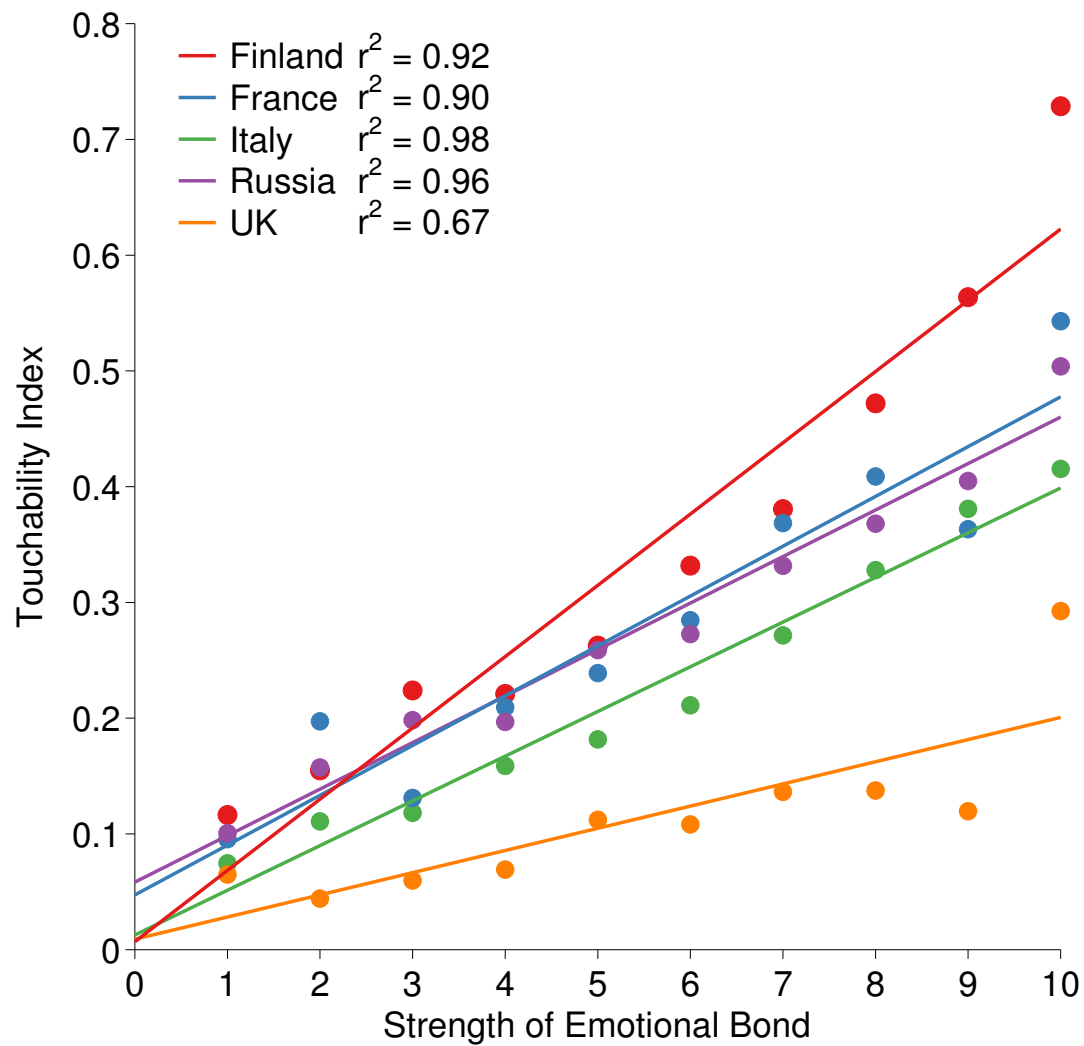


Figure S6: Touching-allowance-based similarity between members in the social network. The adjacency matrix is symmetric, and the same order of labels holds for the horizontal axis. Lower triangular matrix shows the z-transformed Spearman correlation between the average spatial maps. Upper triangular matrix demonstrates the a priori social network layers (from left to right: family, family of origin, extended family, friends, acquaintances, and strangers). Within each ideal network block, the block (light blue) is assumed to be fully correlated and have zero correlation elsewhere (light grey areas). For visualization purposes, the figure only shows values exceeding the median across all map pairs. Blue and red labels signify males and females respectively.

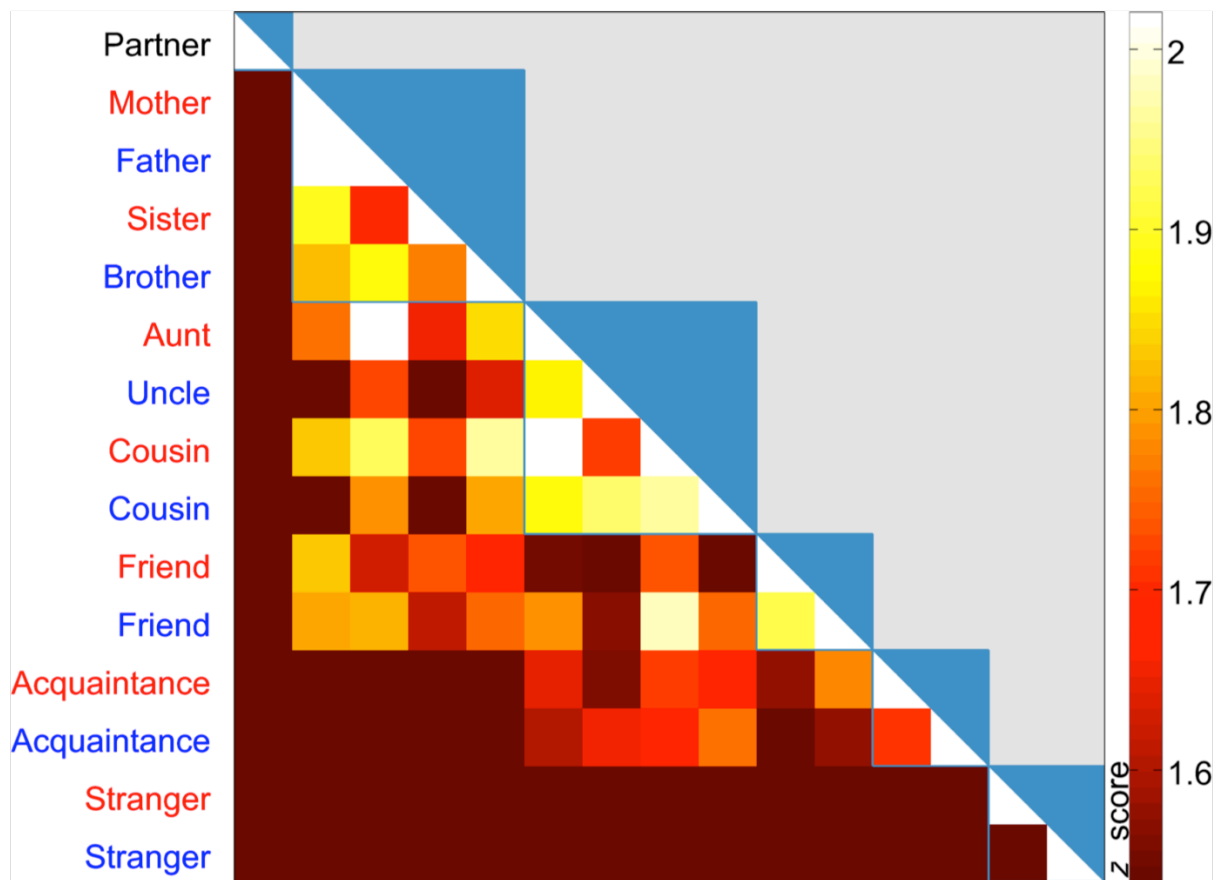


Table S1: Reasons for touch in the Finnish sample (n = 92): χ^2 of relationship-specificity of each reason of touch, *Pearson's correlation* between network layer (defined as partner, primary family, friends, extended family, acquaintances, and strangers) and likelihood of touching for that reason, and frequency of each type of touch over the whole network.

Reason for touch	χ^2	p	Pearson's r	p	Frequency
Consoling	101.6	< 0.001	0.80	< 0.001	0.33
Calming	96.7	< 0.001	0.75	< 0.01	0.26
Giving pleasure	90.5	< 0.001	0.54	< 0.05	0.12
Without any overt reason	83.3	< 0.001	0.79	< 0.001	0.27
Giving attention	38.3	< 0.001	0.81	< 0.001	0.41
Helping	34.7	< 0.01	0.80	< 0.001	0.36
Parting	21.6	0.09	0.81	< 0.001	0.69
Punishing	7.77	0.90	0.05	0.86	0.01
Hurting	5.6	0.97	0.45	0.09	0.01
Scaring	4.2	0.99	0.40	0.14	0.01
Greeting	3.6	1	-0.13	0.65	0.86

Table S2: Mean subject-wise correlations of Touchability Index (TI), emotional bond, experienced pleasantness of touch, age of toucher, and time since last meeting toucher. All correlations are significant at $p < 0.001$ in a two-way test.

	TI	Bond	Pleasantness	Toucher's Age
Bond	0.68			
Pleasantness	0.73	0.86		
Toucher's Age	0.06	0.17	0.08	
Lapse	-0.05	-0.07	-0.03	0.16

Table S3: Results of k-means clustering ($k = 6$) of the TAMs across the tested countries. Theoretical division to network layers is displayed by black lines; numbers denote the cluster each individual was assigned in different cultures.

	Finland	France	Italy	Russia	United Kingdom
Partner	1	1	1	1	1
Mother	2	2	2	3	2
Father	3	3	2	4	2
Sister	2	2	2	3	2
Brother	2	2	2	4	2
Aunt	2	3	2	4	2
Uncle	2	3	2	5	2
Female cousin	3	3	3	4	3
Male cousin	4	4	3	5	3
Female friend	3	3	2	4	3
Male friend	3	4	3	4	3
Female acquaintance	3	4	3	5	3
Male acquaintance	4	4	4	5	4
Female stranger	5	5	4	6	4
Male stranger	5	5	5	6	5

Table S4: Similarity matrix for the TAM-based social networks across tested countries.

All $rs > 0.79$, $ps \sim 10^{-45}$.

	Finland	France	Italy	Russia
France	0.86			
Italy	0.93	0.90		
Russia	0.79	0.81	0.80	
UK	0.86	0.90	0.86	0.79

Table S5: Sex differences in emotional bond and touchable body area (calculated as female minus male) for different members of social network. Asterisks denote significant differences ($p < 0.01$) in t test.

	<i>T</i> statistic, bond	<i>T</i> statistic, TI	Degrees of freedom
Parents	12.62 *	17.52 *	857
Siblings	0.54	7.58	390
Aunt/Uncle	8.10 *	15.62 *	1042
Cousins	3.53 *	15.49 *	1109
Friends	10.05 *	15.76 *	1198
Acquaintances	6.29 *	10.87 *	1203
Strangers	6.16 *	11.47 *	1367

Table S6: Characteristics of the participants

Country	N	Women	Mean age (SD)	Education level
Study 1				
Finland	91	67%	28.2 (9.2)	Elementary: 0% Secondary: 14% Higher: 86%
Study 2				
Finland	194	82%	31.9 (11.7)	Elementary: 3% Secondary: 26% Higher: 71%
France	111	81%	31.1 (14.0)	Elementary: 0% Secondary: 14% Higher: 86%
Italy	462	78%	32.5 (22.3)	Elementary: 1% Secondary: 26% Higher: 74%
Russia	56	80%	26.3 (10.6)	Elementary: 5% Secondary: 23% Higher: 71%
UK	545	42%	44.7 (12.9)	Elementary: 1% Secondary: 52% Higher: 47%
Study 2 all	1368	886	36.9 (13.8)	Mode: Higher
Study 3				
Finland	76	51	30.5 (9.6)	Elementary: 3% Secondary: 20% Higher: 78%

Table S7: Social networks in each country, ordered on mean emotional bond from highest to lowest.

Finland		France		Italy		Russia		United Kingdom	
Network member	Mean bond	Network member	Mean bond	Network member	Mean bond	Network member	Mean bond	Network member	Mean bond
Partner	9.23	Partner	8.82	Partner	8.89	Partner	8.47	Partner	9.17
Mother	8.46	Mother	8.06	Mother	8.67	Mother	7.80	Mother	8.08
Sister	7.90	Brother	7.79	Brother	8.26	Female Friend	7.53	Father	7.24
Brother	7.76	Female Friend	7.76	Female Friend	8.01	Brother	7.41	Brother	6.99
Female Friend	7.73	Father	7.48	Father	7.89	Male Friend	6.74	Sister	6.98
Father	7.66	Male Friend	7.38	Sister	7.86	Sister	6.24	Female Friend	6.46
Male Friend	7.04	Sister	7.22	Male Friend	7.60	Father	5.98	Male Friend	5.97
Female Cousin	4.95	Aunt	5.59	Aunt	5.83	Female Cousin	4.81	Aunt	5.42
Aunt	4.88	Female Cousin	5.39	Female Cousin	5.71	Aunt	4.79	Uncle	5.22
Uncle	4.38	Male Cousin	5.08	Uncle	5.31	Female Acq.	4.53	Male Cousin	4.85
Male Cousin	4.34	Uncle	4.90	Male Cousin	5.28	Male Cousin	4.47	Female Cousin	4.57
Female Acq.	4.01	Female Acq.	3.85	Female Acq.	4.60	Male Acq.	4.32	Female Acq.	4.57
Male Acq.	3.77	Male Acq.	3.82	Male Acq.	4.38	Uncle	3.92	Male Acq.	4.25
Female Stranger	2.18	Male Stranger	2.20	Female Stranger	3.00	Female Stranger	2.66	Female Stranger	2.42
Male Stranger	2.04	Female Stranger	2.14	Male Stranger	2.81	Male Stranger	2.55	Male Stranger	2.30